RI-E

Electronic remote indicator and drawbar max. turnangel indicator

Affichage à distance électronique et Voyant d’angle de rotation

L’indicatore a distanza elettronico et indicatore di emergenza angolo di rotazione
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**Official note**

When installing the remote indicator, Directive ECE R 55-01, in particular Annex 7 and the relevant national regulations must be observed. The fitting and operating instructions must be kept in the vehicle.

Subject to technical changes without prior notice.

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Installation must be carried out by an authorised workshop!

Before installation, please read these instructions carefully!
1. Safety instructions

The safety instructions are summarised in a single chapter. In any situation where the user of the trailer coupling is at risk, the safety instructions are repeated in the individual sections and marked with the warning symbol shown here.

When handling trailer couplings, tractor vehicles and trailers the relevant safety regulations in the respective country must be observed (e.g. Berufsgenossenschaft in Germany). Any safety instructions in the operating manual of the tractor vehicle and the trailer remain valid and must be observed.

For operation, maintenance and assembly the safety instructions listed below must be observed. Further safety instructions are then given in the individual case which relate directly to the respective activity.

1.1 Safety instructions for operation

- The trailer coupling may only be operated by authorised persons.
- The installation and operating instructions of the respective trailer coupling retain their validity and must be observed.
- Only use the trailer coupling and the towing eye of the trailer if they are in perfect technical condition.
- Only carry out hitching / unhitching operations on firm, level ground.
- During hitching, nobody may stand between the tractor vehicle and the trailer.
- After every hitching operation the correct locked status of the trailer coupling must be checked by means of the control pin or the remote indicator. Only drive the rig in the correctly locked status.
- The remote indicator does not exempt the driver from the obligation to check before driving off. Before driving off, among other things, the coupling status of the mechanical connection device for the tractor vehicle and the trailer must be checked.

1.2 Safety instructions for maintenance

- For maintenance work, only use the prescribed lubricants.
- Maintenance work may only be carried out by qualified personnel.

1.3 Safety instructions for installation

- Installation may only be carried out by authorised workshops.
- Installation must be carried out in compliance with the relevant accident prevention regulations and the technical regulations for mechanical equipment.
- Only original ROCKINGER components may be used.
- Instructions and installation guidelines of the vehicle manufacturer must be observed, e.g. type of fastening, clearances etc.
- All screwed connections must be tightened with the prescribed tightening torque.
- Work may only be carried out on the trailer coupling when it is closed.

Risk of accident!
The installation must be carried out in accordance with appendix 7 of the regulations ECE R55-01 must be checked accordingly. As applicable, the relevant licensing regulations in the respective country must be observed. The mechanical remote control and the mechanical remote indicator are equipment with safety components. This is why the installation must be documented.

The trailer coupling, the remote control and the remote indicator are connection devices which require model approval and are subject to the highest safety requirements. Alterations of any kind shall cause the warranty to lapse and invalidate the model approval, which in turn invalidates the vehicle operation permit.
2. Installation

2.1 Before installation

The kit does not include the electric fuse!
Fuse type according to the truck manufacturer’s instructions!

Note: When installing the remote indicator, please observe:
● applicable national regulations
● guidelines of the vehicle manufacturer
● the generally applicable regulations for the installation of electrical components in a truck
● possibility of axial rotation of the coupling head min. ± 25°
● Do not pull at the plug

2.1.1 Interfaces
The trailer coupling must have the appropriately prepared interface for the later installation of a remote indicator with two sensors \((S1 + S2)\) or turn-angle-warning with a third sensor \((S3)\). See Inspection.

2.1.2 Inspection of the components
● Does the upgrade kit match the trailer coupling?
  – compare the data on the type plates with the suitable tow hitches (see page 17)
  – the last digit of the article no. = techn. release \((T)\), see Fig.1
● Check the supplied components for completeness
2.1.3 Each Upgrade Kit contains:

- 1 x Display with connecting cable and plug (Fig. 2).

- 1 x Extension cable (15m) with mounting flange, screws and plug (Fig. 3).

- 1 x 2 sensor cable with plug (only remote indication) (Fig. 4).

  or (depending on the version)

- 1 x 3 sensor cable with plug (remote indication plus turn angle warning) (Fig. 5).

  Only for set with turn angle warning

- 1 x Turnangle warning adjustment plate with screws M6 for Type RO•50 und RO•50E and distance washer for adjustment of funnel (Fig. 6 and 2.2.3, Fig. 11).
2. Installation

2.2 Installation of the sensors

S1 + S2 and S3 (depending on the set)

2.2.1 Installation of the indicator sensors S1 + S2 (Fig. 8)

- Remove the plastic cover (P) at the interfaces (T).
- Check the preset of the sensors. The sensors are preset for RO*400 T1 and RO*430 T2. For the other hitch types the adjustment measure E (see Fig. 8) has to be adjusted according to the table:

<table>
<thead>
<tr>
<th>Adjust preset</th>
<th>Sensor 1</th>
<th>Sensor 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>RO<em>400 / RO</em>430</td>
<td>E1 ± 0.3</td>
<td>E2 ± 0.3</td>
</tr>
<tr>
<td>RO<em>50 / RO</em>50 E / RO<em>50 BNA / RO</em>40 E / RO*40 CH</td>
<td>(14,5)</td>
<td>(16)</td>
</tr>
<tr>
<td>RO<em>56 E / RO</em>561 E</td>
<td>15,5</td>
<td>21,5</td>
</tr>
</tbody>
</table>

- Loosen the locknut and adjust the sensors according to the measurement E1 and E2 according to the table.
- Tighten locknut again (max. tightening torque 1.3 Nm).
- Insert marked sensors (S1 + S2) with the fastening flange and fitted O-ring into the corresponding interfaces (Fig. 7, T) and tighten the fastening screw (B)-M6 with 5 Nm.
- Ensure axial play (± 25°) of the trailer coupling.

Lay the sensor cable and the indicator with plastic clips in such a way, that the cable harness is not scraping or kinked. (do not lay too tightly, take account of axial movement of hitch). Do not pull at the plug (Danger of damage).

The plug C2 should be led to the cross bar and connected there with the plug C11 of the extension cable.
2.2.2 Installation of turn-angle warning system for hitch types RO*50 and RO*50E

- Laying of the sensor S1+S2 as described in 2.2.1
- Mount adjustment plate WG with 2 flange screws (R) M6 to the funnel (torque 18 Nm)
- Not marked Sensor (S3) is pre mounted on holder (F) and may be adjusted for mounting (Fig.10).
- Slide Sensor (S3) with fastening flange and fitted O-Ring onto the interface T and tighten the fastening screw B M 6 with 5 Nm.
- Adjusting the adjustment plate see Fig. 10. Adjusting S3 if necessary.
- For adjusting the sensor (S3) unscrew the counter nut KM and holder F with screwed sensor S3 onto the interface T draw the sensor (S3) out; redraw counter nut KM; adjust the sensor (S3) according Fig. 10 to distance (S) = 1 to 1.5 mm; fasten the counter nut KM with max. 1.3 Nm again. Remove adjusted sensor of the interface T. Redrill possibly twisted cable and tighten the fastening screw with 5 Nm.
2. Installation

- After mounting the sensor, the height of the funnel must be checked (should be < 1.7 mm)
- Should the funnel touch the sensor (danger of damage to the sensor), the supplied plastic ring should be installed at the bottom between the coupling body and the funnel (see fig. 11)
- Then the sensor setting must be checked and corrected if necessary

Note:
- However, it may not impair or hinder the release of the funnel (lightly swiveling back into the starting position/centre position see the corresponding passage in the assembly instructions of the respective hitch).
- If this is the case, the plastic ring must be removed again.

(Risk of mis-hitching, damage to the funnel!)

Fig. 11
2. Installation

2.3 Laying the extension cable to the driver’s cab
(Fig. 12)

- Fix the bracket H3 of the plug C1 at the cross member in a suitable place.
- Connect the sensor plug C1 with the plug C2 of the extension cable and fix to the cross bar using cable binders.
- Lay the cable along the frame in accordance with the vehicle manufacturer’s guidelines into the driver’s cab.
  - Lay and fix the cable in such a way that it cannot scrape or kink.

2.4 Display

- Mount the display at a suitable position in the field of vision of the driver.
- Lay the extension cable with the plug B1 under the instrument panel and secure it.

2.5 Connection to the vehicle electrical system

- Connect the black cable (earth) with terminal 31
- Connect the white cable (+24 Volt) with terminal 15
  The connection must be protected by a 2A fuse (DIN 72581-3).
  - ATTENTION!
    Connect plug B and B1 only if the ignition is off.
2. Installation

2.6 Adjustment of the Turnangle Warning

*RO*50 und *RO*50E (optional)

The adjustment plate **WG** is mounted at the funnel and swings together with the funnel under Sensor **S3**.

- For adjustment hitch the trailer on. Reverse prime mover into position in which signal should be actuated.
- It is essential to allow a certain swing arc for braking prime mover.
- Segments **GZ** of adjustment plate **WG** that are not required can be bent outwards from sensor **S3** inner edge using suitable tool (Fig. 13) until the signal (Symbol 2, Fig. 14) in the display lights up and gives sound signal.

**Indicator colours in display:**

1 = GREEN
2 = YELLOW
3 = RED
2. Installation

2.7 Function Check

Sensors and cables are mounted according the instruction.
- Display is mounted in the drivers cabin in the area of the drivers view
- Plugs C2 and C1 are connected
- Ignition is on (24 V/DC)
- Function according 3.1 Fig 16 and 16 a
- Additional with the 3 sensor solution the display warns the tilt angle in case the critical angle is reached.
2.8 Fault finding

2.8.1 Possible indications at the display (fig.15)

2.8.2 Function – tracking (fig.15)
- The system carries out a self-diagnostic test when the ignition is switched on. All LEDs flashing shortly.
- Verifying the signal of the sensors
- Flashing and buzzing by not correct signals
- Reset by switching ignition on and off again
- The LED dims down after 2 min. and lights up again if any changes to the system

2.8.3 Diagnostic table for faults

<table>
<thead>
<tr>
<th>No.</th>
<th>Display</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1 + 2 + 4 permanent Red</td>
<td>broken cable at + 2 sec. continues tone sensor S1 and S2</td>
</tr>
<tr>
<td>2</td>
<td>3 flashing Yellow</td>
<td>broken cable at + 2 sec. continues tone sensor S3</td>
</tr>
<tr>
<td>3</td>
<td>2 + 4 Red + intermittent tone</td>
<td>breakdown of Sensor S1</td>
</tr>
<tr>
<td>4</td>
<td>1 + 4 Red + intermittent tone</td>
<td>breakdown of Sensor S2</td>
</tr>
<tr>
<td>5</td>
<td>3 Yellow + intermittent tone</td>
<td>breakdown of Sensor S3</td>
</tr>
<tr>
<td>6</td>
<td>1 + 2 + 4 permanent Red</td>
<td>Voltage is to low (&lt;16 V)</td>
</tr>
</tbody>
</table>

Fig. 15

1 hitch closed and secured Display = GREEN
2 hitch opened – not secured Display = RED
3 Turnangle warning (optional) Display = YELLOW
4 ROCKINGER-Logo Display = WHITE
3. Operation

3.1 Hitching and Unhitching

**Note:** The relevant national regulations (e.g., safety-at-work) must be observed when hitching and unhitching.

**No one must stand between the vehicles!**
- The indication at the Display shows the status of the hitch (Fig. 16, 16 a)
- The remote indication does not show whether the drawbar eye is hitched (this is only shown if you have a release lever system hitch, like the RO*50E)
- The remote indication does check the status of the hitch due to 2 sensors at different places. If the sensors indicate different signals – they signal a fault (see 2.9.3)

*If there are any doubts about the indication, signal or the status of the hitching procedure, is the driver obliged to check the status directly at the hitch.*

3.2 Turnangle warning (optional)

- The possible swivel range depends on the design of the frame or the trailer. The range may be smaller than the hitch's pivoting angle 90°. Expensive hitch, vehicle and drawbar damage can be easily avoided with the upgrade kit for turnangle warning display.

3.3 Control

**Check:** After each hitching procedure, it is essential to check that the hitch is correctly closed and locked. The lock-control pin must not protrude out of its guide after hitching (see fig. 17)

*If the lock-control pin protrudes from its guide (in the dark detectable by touching it), the hitching procedure has been carried out incorrectly and there is the risk of an accident! (see hitch manual)*

*Driving a trailer in that condition is not allowed.*
4. Maintenance

4.1 Care

- The sensor and the connection cable are maintenance-free.
- However, the cables should be checked at regular intervals for cracks, abrasion and water-tightness of the connections in order to avoid moisture penetrating the cable harness.

4.2 Inspection (with the coupling closed)

A control LED (white) is lit on the sensor in the area of the cable connection (when the ignition is switched on)

- If the control LED is not lighting, there are two possibilities:
  - Sensor is defective indicator at the display (see Fig. 15)
  - the pre-setting is not correct
    1) Release the locknut K on the sensor
    2) Turn the sensor carefully to the right until the stop, then turn the sensor back by about 1.5 rotations. Secure the setting with the locknut K. **Maximum tightening torque 1 Nm.**
    The LED must be lit (when the ignition is switched on)
    3) If not, reduce the setting until the sensor LED is lit.

**ATTENTION!**
The sensor must not be in contact with the component.
Minimum distance: approx. 0.5 of a rotation.

- Countercheck by alteration of the mechanical switch position, e.g. opening the trailer coupling with the hand lever ➔ the LED must go out after approx. 15 degrees handle lever angle.

Defective cables plugs or sensors must be replaced!
5. Technical Data

**Fig. 19**

**SW** (black) Minus, clip 31

**WS** (white) Plus, clip 15

**Tightening torque**

10 Nm

**24V/DC**

**Driver’s cabin**

**ROE 71547**

**ROE 71546**

**ROE 71546**

**RO*50, RO*50E**

**RO*50BNA**

**RO*400T1**

**RO*40E – 40CH**

**RO*56E, RO*561E ab T0**